

Food Traceability: the key to global market access

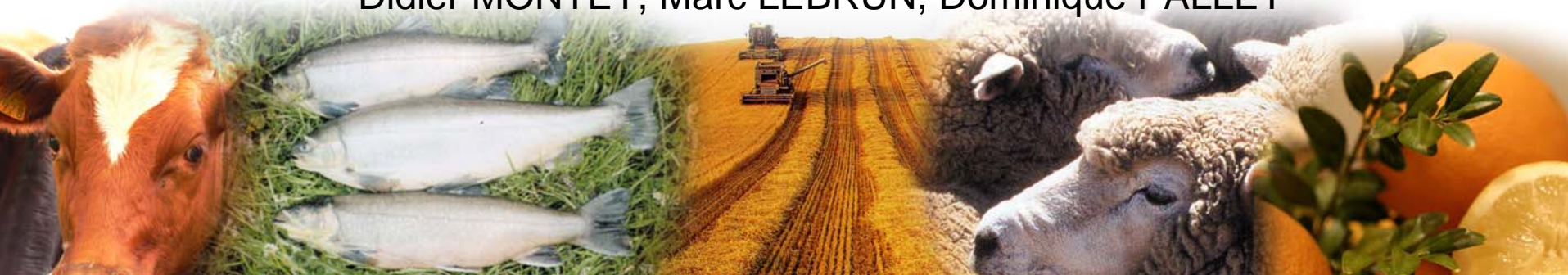
1st and 2nd of April 2008, Kuala Lumpur, Malaysia

Session 5: The European Program – New science in traceability

IMPLEMENTING A NETWORKING PLATFORM TO PROMOTE AND ENHANCE SCIENCE AND TECHNICAL CO-OPERATION WITH EUROPE IN FOOD QUALITY AND SAFETY

Mathieu WEIL, Caroline BLACHE, Fabrice DAVRIEUX,

Didier MONTET, Marc LEBRUN, Dominique PALLET



IMPLEMENTING A NETWORKING PLATFORM TO PROMOTE AND ENHANCE SCIENCE AND TECHNICAL CO-OPERATION WITH EUROPE IN FOOD QUALITY AND SAFETY

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 - Polymerase Chain Reaction – Denaturant Gel Gradient Electrophoresis
 - Electronic nose
 - Near Infra Red Spectrometry





French Agricultural Research Centre for International Development



working for developing countries and the
French overseas regions



Six strategic lines of research

- ➡ **Ecological intensification**
- ➡ **Biomass energy in favour of communities in the South**
- ➡ **Safe, varied food**
- ➡ **Animal health and emerging diseases**
- ➡ **Public policy, poverty and inequality**
- ➡ **Relations between agriculture, environment, nature and society**



One operating principle: partnerships



Projects built and implemented hand-in-hand with research and development players

- Research organizations and universities
- Professional organizations and the private sector
- Public authorities and donor agencies
- Local authorities
- NGOs



Working in the South

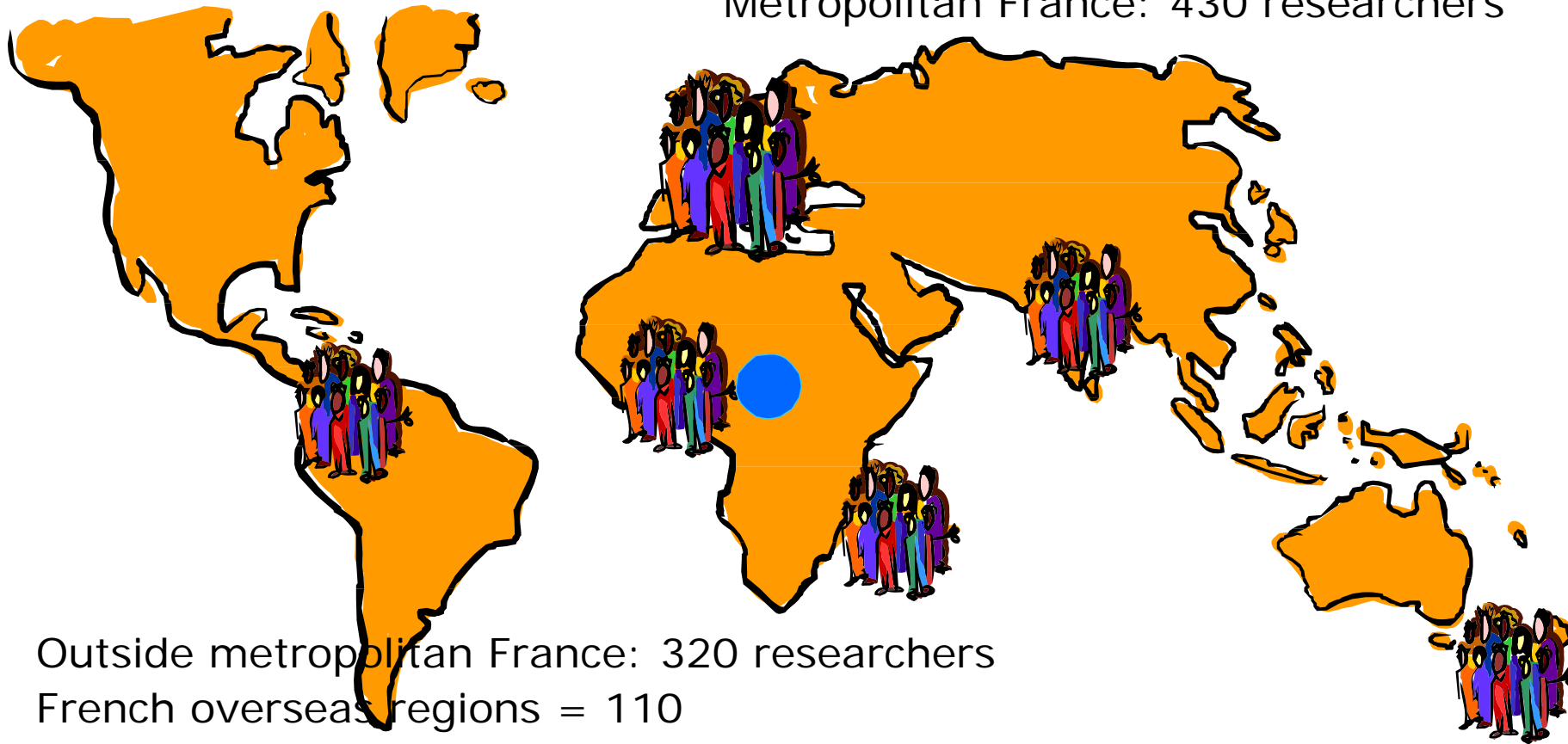


Cirad's Organization

3 Departments - 60 research units

1800 persons including **750 researchers**

Metropolitan France: 430 researchers



Outside metropolitan France: 320 researchers

French overseas regions = 110

Other countries = 210, including 30 in international research centres



2. ALCUEFOOD

“From European fork to Latin American farm”: an innovative networking platform for EU – LAC partnerships in food quality and safety R&D”



www.alcuefood.org



Project's objectives

MAIN GOAL

To strengthen the EU-LAC R&D cooperation through the effective involvement of LAC partners in european consortium on FQS

GENERAL OBJECTIVE

To implement a permanent EU-LAC platform on FQS

SPECIFIC OBJECTIVES

To develop and implement a comprehensive EU-LAC information system on FQS issues

To define EU-LAC stakes on FQS and state priorities on elaboration of joint R&D projects

To enhance the LAC capacity building through better use of the existing EU-LAC cooperation instruments

To propose to EC and/or european consortia relevant LAC "groups of excellence" for further involvement in the new FP 6&7 instruments

KEY DATAS

- ➡ Full project time : 36 months
- ➡ Total human resources : 121 person months – 13 partners
- ➡ 4 EU Member States (*France, Belgium, Spain, Portugal*)
4 Latin American MERCOSUR countries (*Argentina, Brazil, Chile, Uruguay*)
- ➡ Total Budget : 737 500 euros

EXPECTED RESULTS

- ➡ Strengthening of trade in Food Sector
- ➡ Compliance of LAC Food Exports with EU regulations

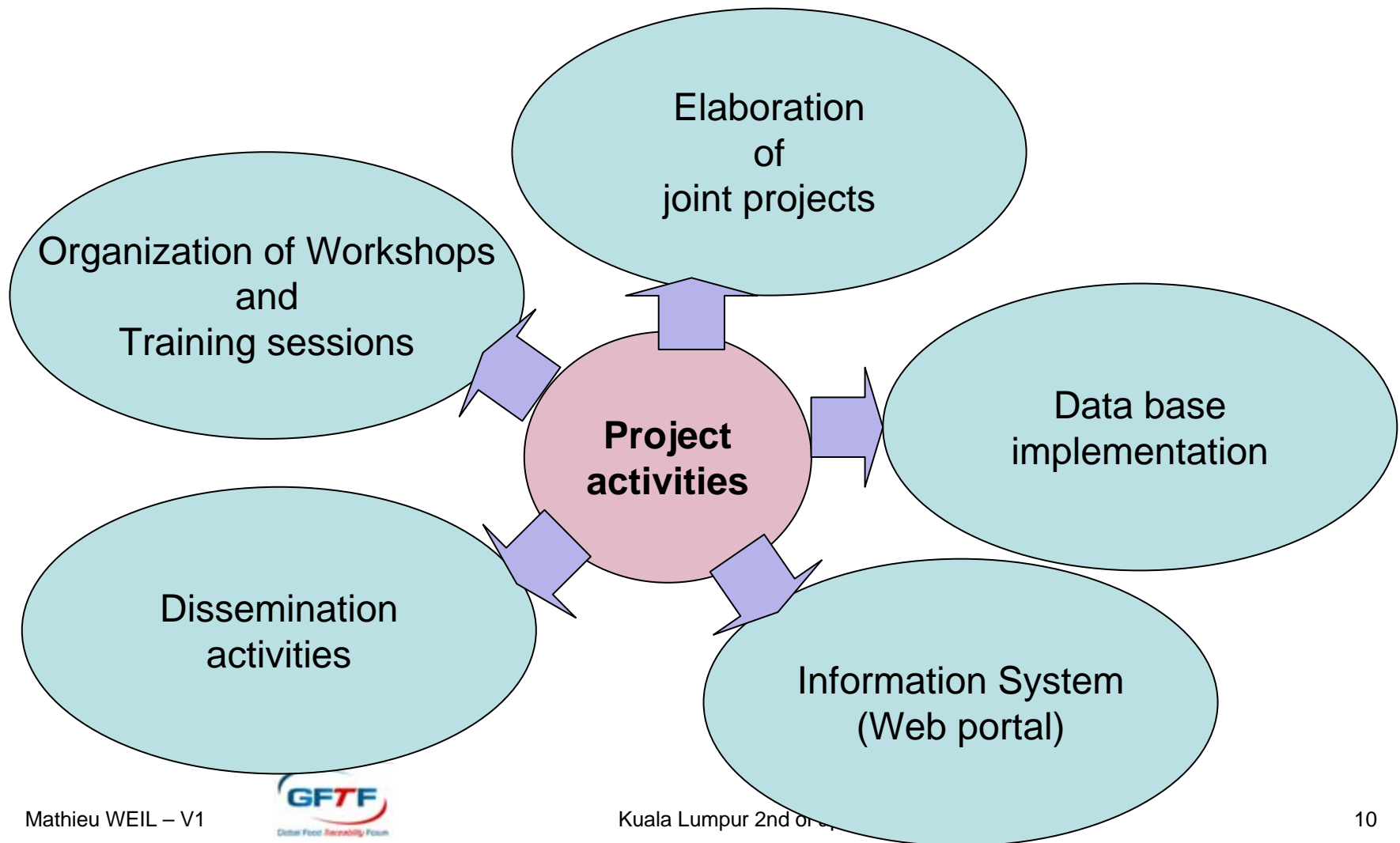
A total
food chain
approach

PROJECT CUSTOMERS

- ➡ All stakeholders of the food supply chain : producers, firms, consumer associations, academic and research sector, policy makers, regulatory bodies

Traceability

was identified as one of major priority topics
(existence of a knowledge, existence of research activities ...)



Organization of workshops and training sessions

Field: Traceability in the food chain

“Geo information in traceability systems, agricultural production systems and environmental management : opportunities in regional development”

Campinas, Brazil, 27th of July 2005, 35 participants

“Recent advances on food traceability systems”

Santiago, Chile, 1st of August 2005, 95 participants

“Opportunities for EU-LAC co-operation on food traceability systems”

Santiago, Chile, 2-3 August 2005 (60 participants)

“Traceability systems along the meat chain”

Buenos Aires, 4th of August 2005 (60 participants)

“Strategic Technology Watch - applied to traceability, why and how to use Internet efficiently”

Buenos Aires, 28 November - 2 December 2005 (15 persons trained)

Elaboration of joint EU-LAC Projects

Field: Traceability in the food chain

Offer interface with INCO (southern cone) countries to FP6 project (SSA PETER)

Facilitate integration of INCO partners in the EC top-up procedure (*joining Integrated Projects or Network of Excellence*)

Elaboration of new projects for the FP6/FP7 (ex: SSA OTAG - *Geodecision to Track and Trace Agricultural Production*)

Data base implementation

Building a Database in **traceability** between the two regions
for Key Stakeholders:

Producers, Entreprises and Traders

Scientists and Research Institutions

Consumer Groups and Policy Makers

Information System (www.alcuefood.org)

ALCUEFOOD - From European fork to Latin American farm - Microsoft Internet Explorer

Fichier Edition Affichage Favoris Outils ?

Précédente Rechercher Favoris

Adresse <http://www.alcuefood.org/online/site/2720211.php> OK

Liens Hotmail Personnaliser les liens Windows Windows Media Add to IKeepBookmarks Guide des chaînes HotMail (gratuit) Internet démarrage

Copernic Agent Le Web Remonter Historique Veille Barre Résultats

Workplan
Partners
Meetings
News
Related links
Technology Watch
Updated
Contact us
Intranet

Information collection

- Mapping of competencies
- Ongoing FQS projects
- EU-LAC agreements
- Market requirements
- Standards & norms
- National policies

Updating
Data Compilation
Technology Watch

Public access

WEBSITE
www.alcuefood.org

Newsletter

Discussion groups

ALCUEFOOD INTRANET

Data bases

Consortium members

Norms & Regulations
R&D Policies
On going projects
Expertise groups
Technology transfer
Research results

ALCUEFOOD

Terminé

démarrer Microsoft Office ... ALCUEFOOD - From ... Microsoft PowerPoint... Mes documents FR 11:52

Dissemination activities

Through the Information System / Web Portal

Through Workshops and Trainings

Through Participation in PETER:

- Disseminate European information to LAC/INCO countries
- Put forward LAC/INCO demands/contexts for better adequation of traceability systems to the real needs

3. A few Cirad's researches on traceability using innovative tools for Food Quality and Safety

➡ developed in Joint Research Unit QualiSud



- PCR DGGE (fishes)



- Electronic nose (dates)

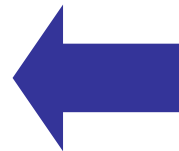


- Near Infra Red Spectrometry (coffee and cocoa)

Microbial ecology to trace origin

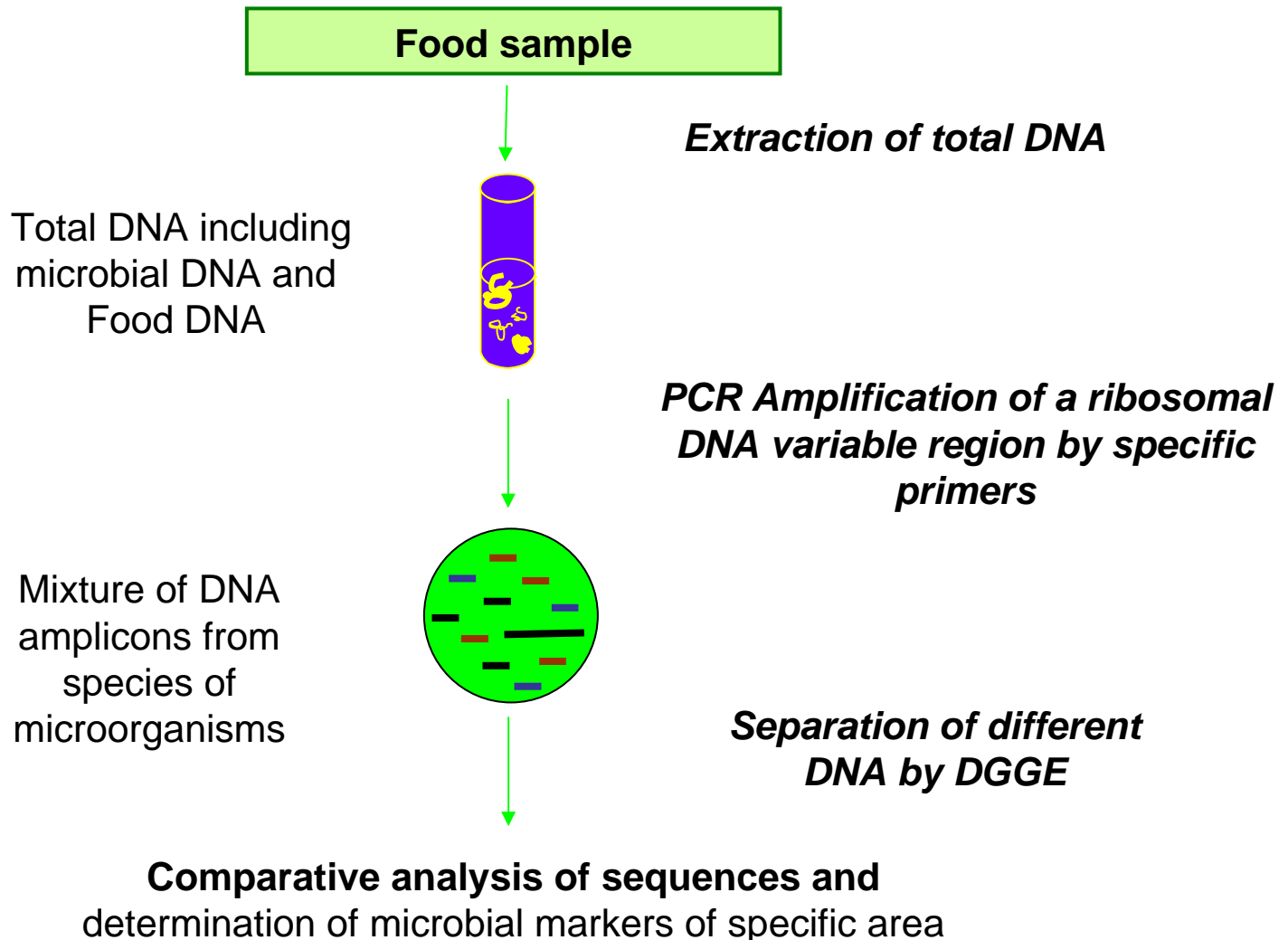
by Polymerase Chain Reaction – Denaturant Gel Gradient Electrophoresis

didier.montet@cirad.fr



Pangasiculture in Mekong delta (100.000 tons per year)

New method PCR-DGGE

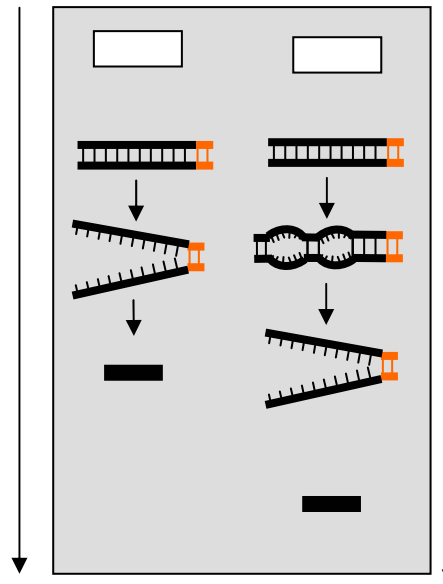


PCR-DGGE

UV transilluminator



DGGE



DGGE

Statistical analysis

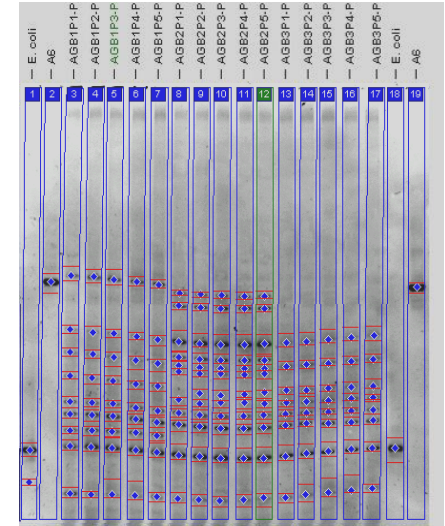
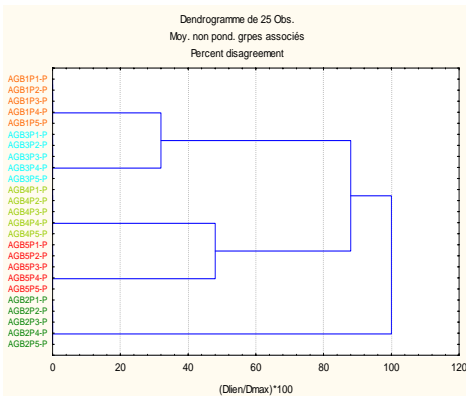
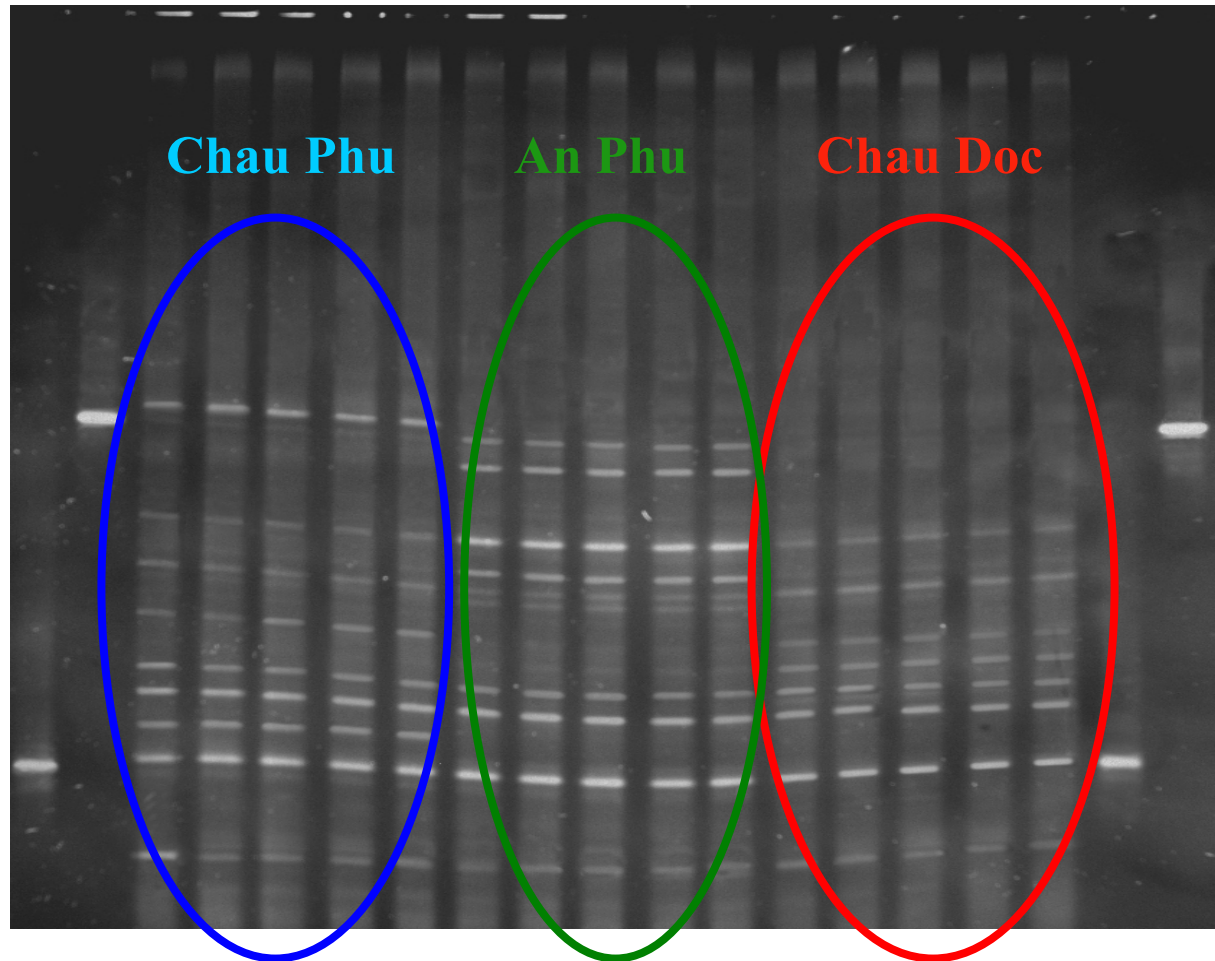


Image analysis

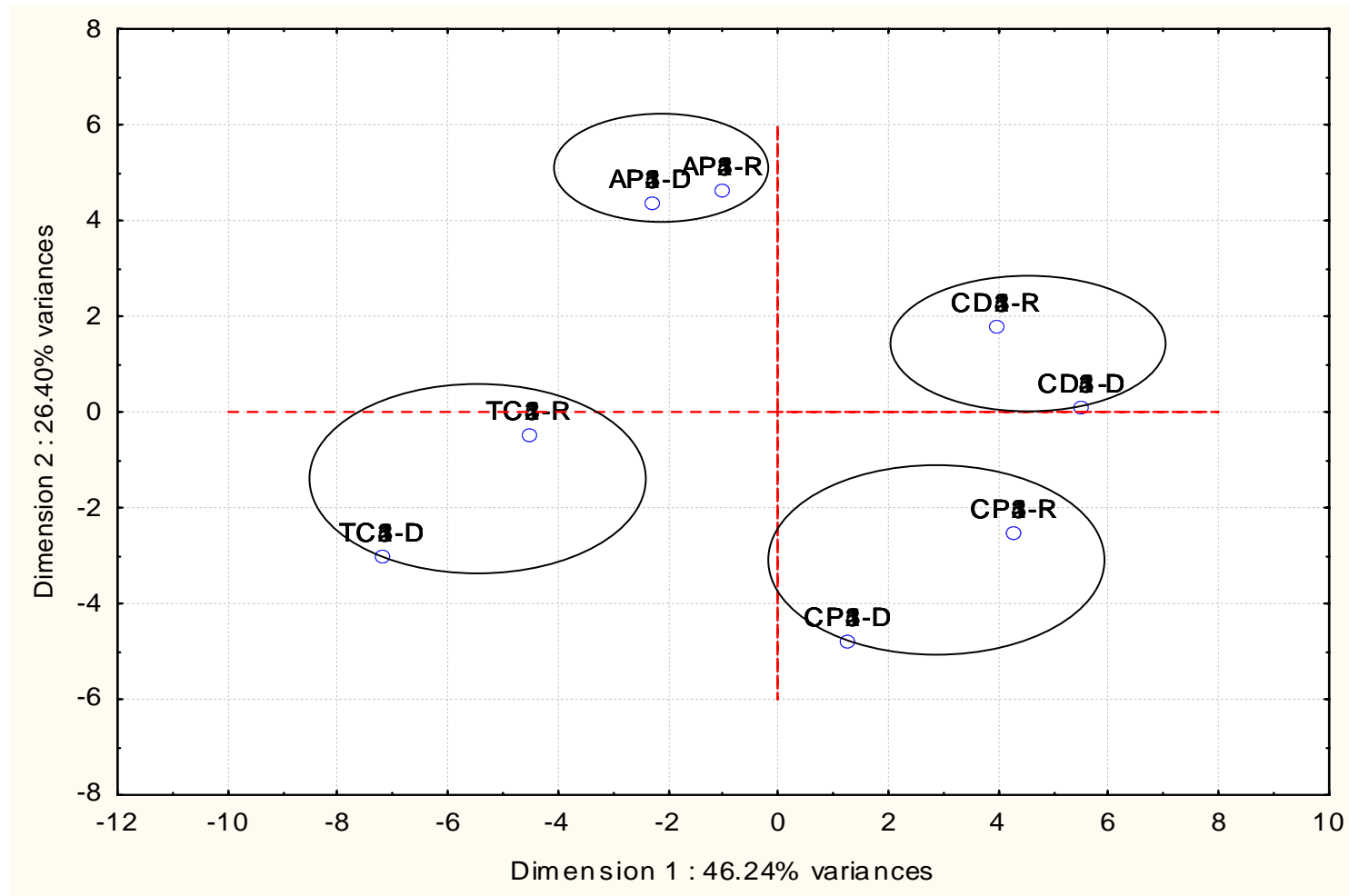
DGGE prints of bacteria extracted from dry fishes coming from three different farms (rainy season)

L. plantarum

E. Coli



Factorial analysis of DGGE fingerprint of bacteria from fishes of 4 districts in the province of Angiang (Vietnam) at rainy and dry seasons

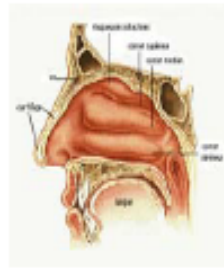


CP: Chau Phu; CD: Chau Doc; TC: Tan Chau; AP: An Phu
R: rainy season; D: dry season

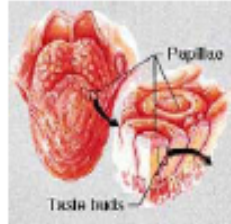
Electronic nose to distinguish dates varieties

marc.lebrun@cirad.fr

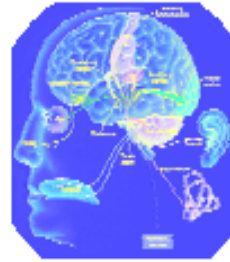
Human



Odor receptors



Taste receptors



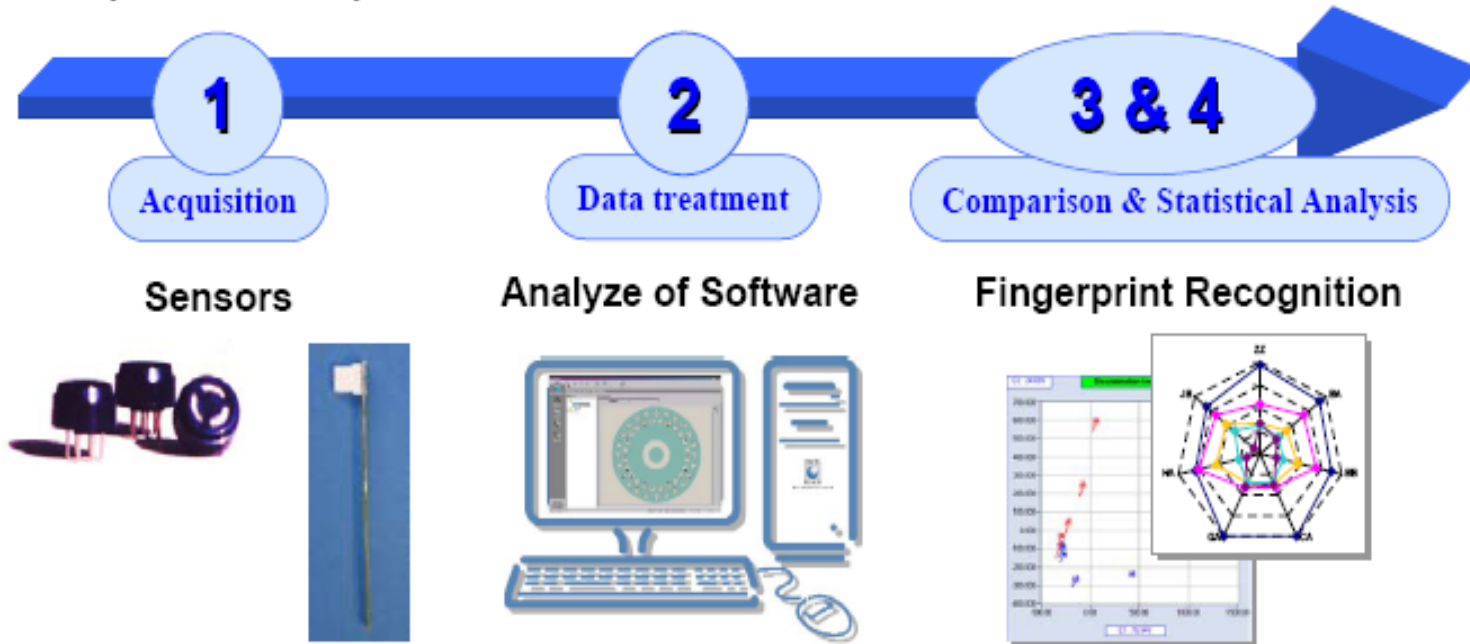
Analyze of Brain



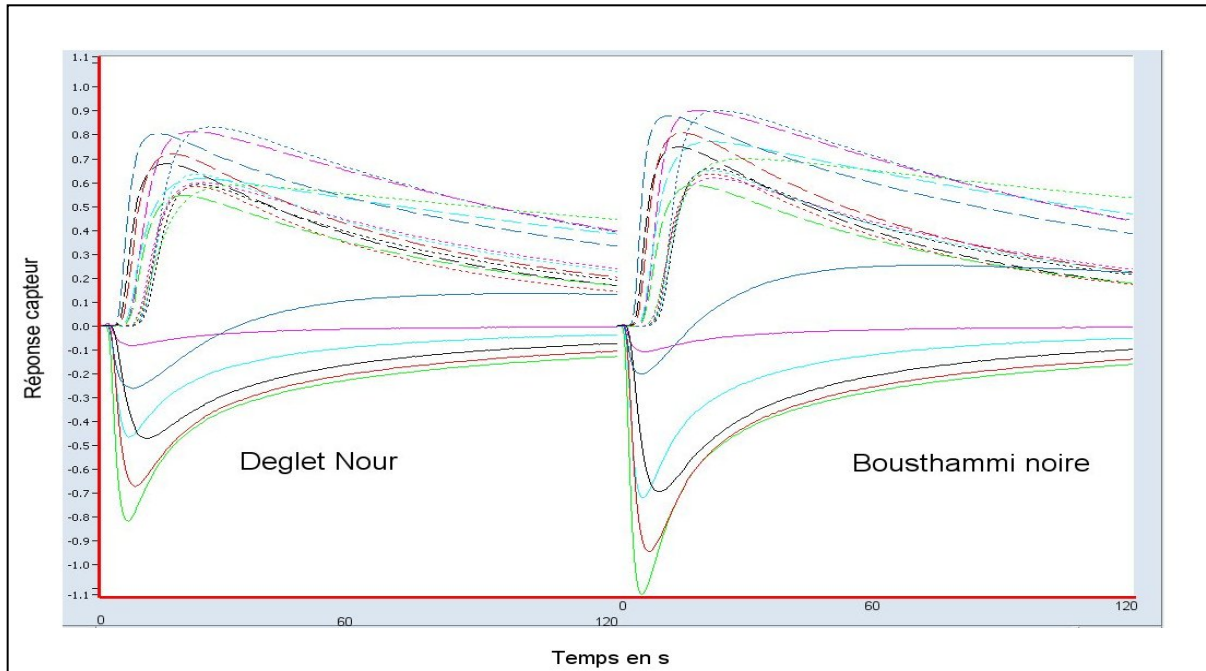
Lot B is different

Fingerprint Recognition

Électronique

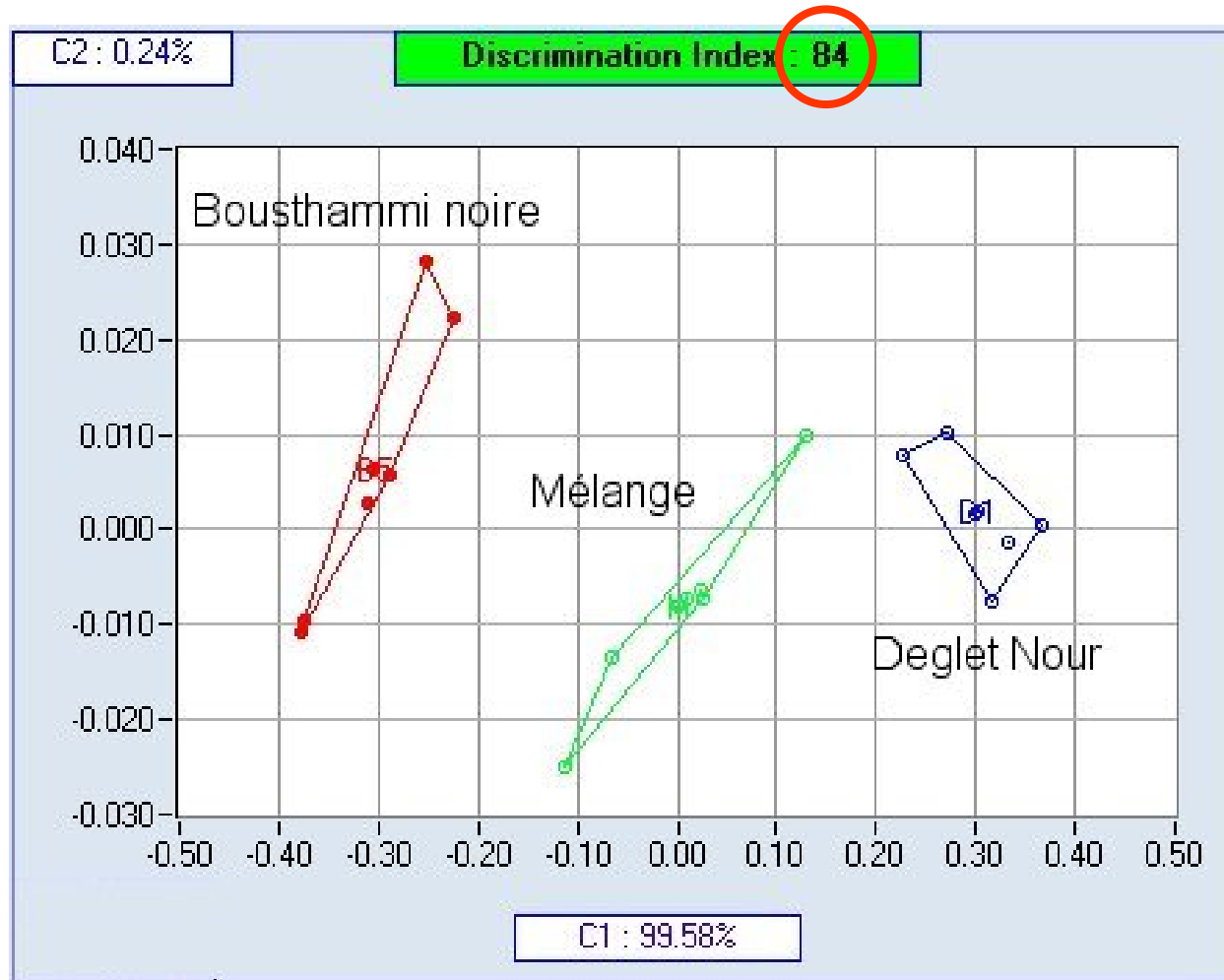


Visualization of the global finger prints



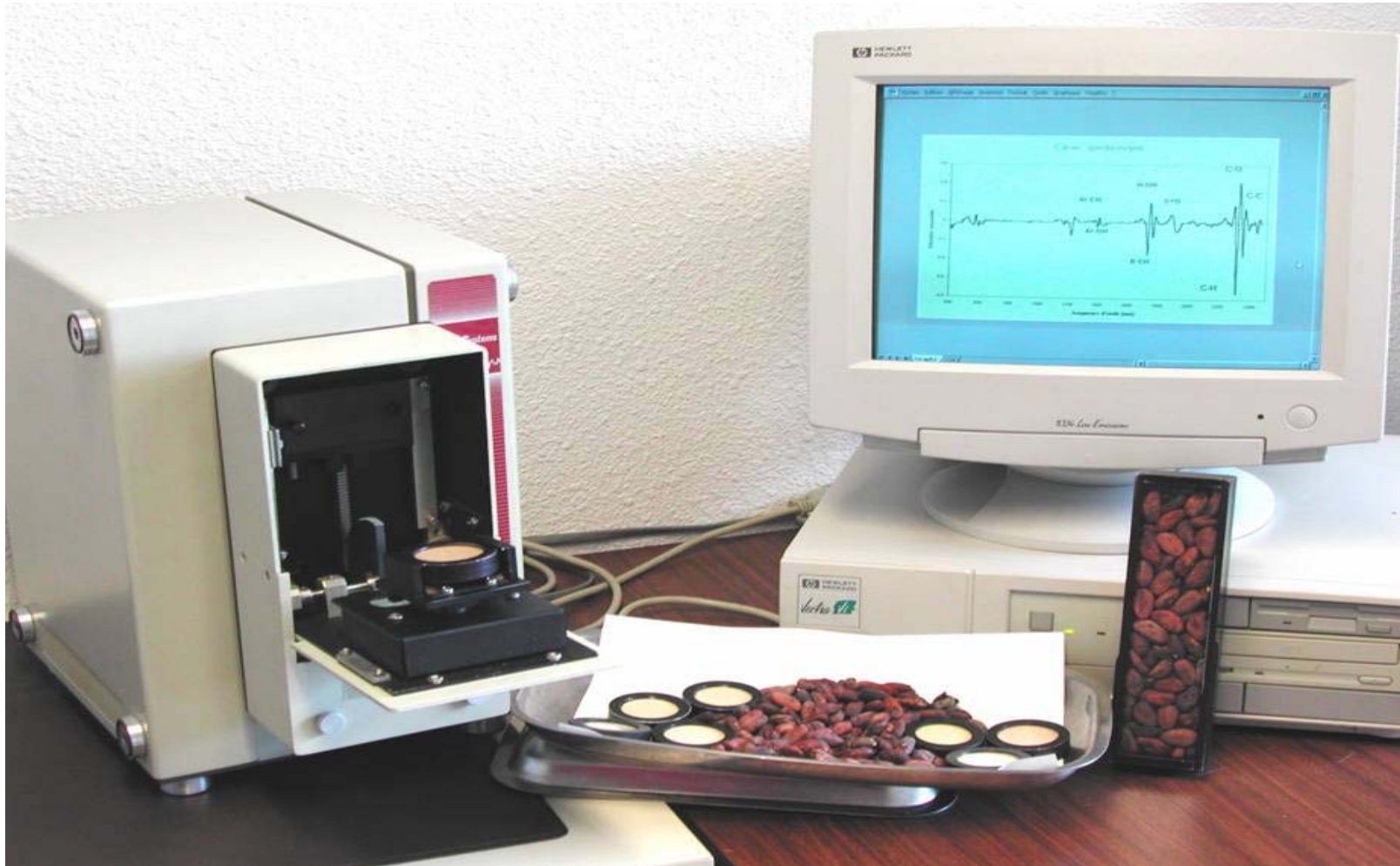
Electronic nose
Mass spectrometer
+ sensors

Distribution of Black Bousthammi, Deglet nour and their mix 50% on first principal plan

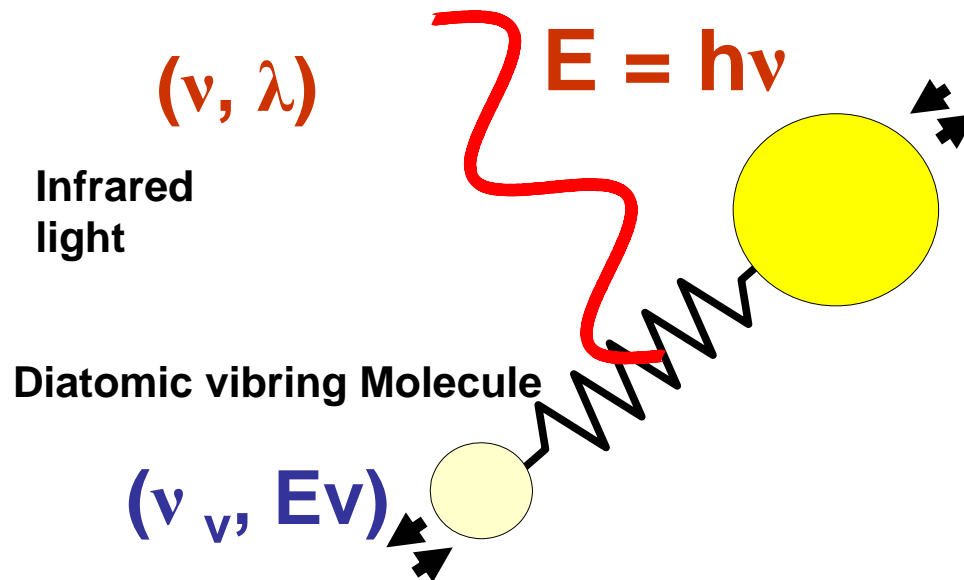


Near Infra Red Spectrometry

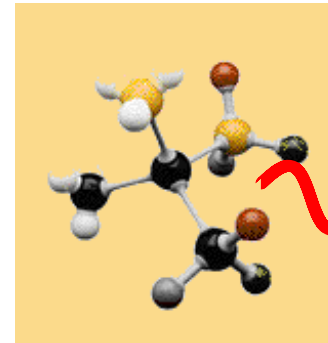
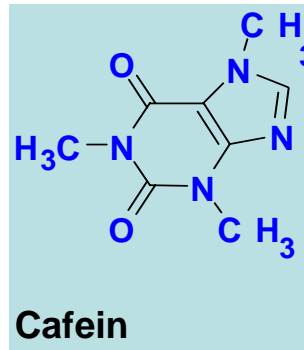
fabrice.davrieux@cirad.fr



Near Infra Red Spectrometry: principle



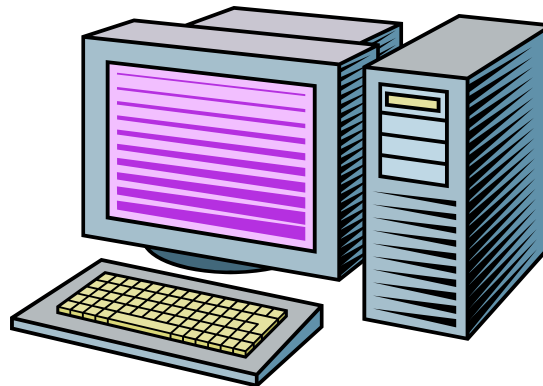
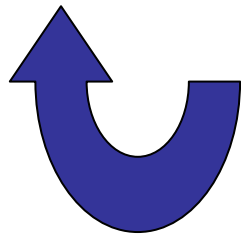
The SPIR is the measurement of the absorption (Wave length and intensity) of the near infra-red light by a sample. The principle of the technic is based on the vibrational properties of the molecules and their interactions with the light.



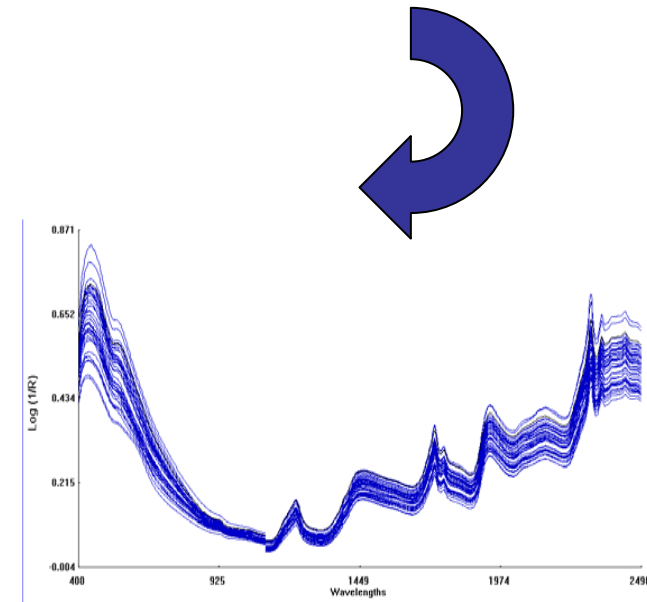
Infrared Light

Energy absorbance by Chemical Links

Qualitative Analysis
Quantitative Analysis



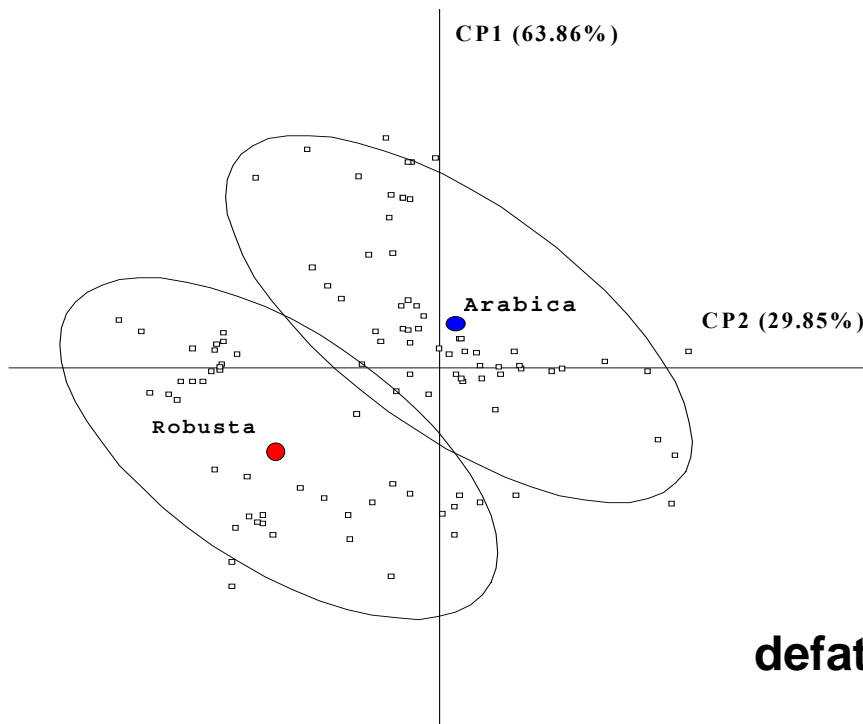
Comparison to spectral data base



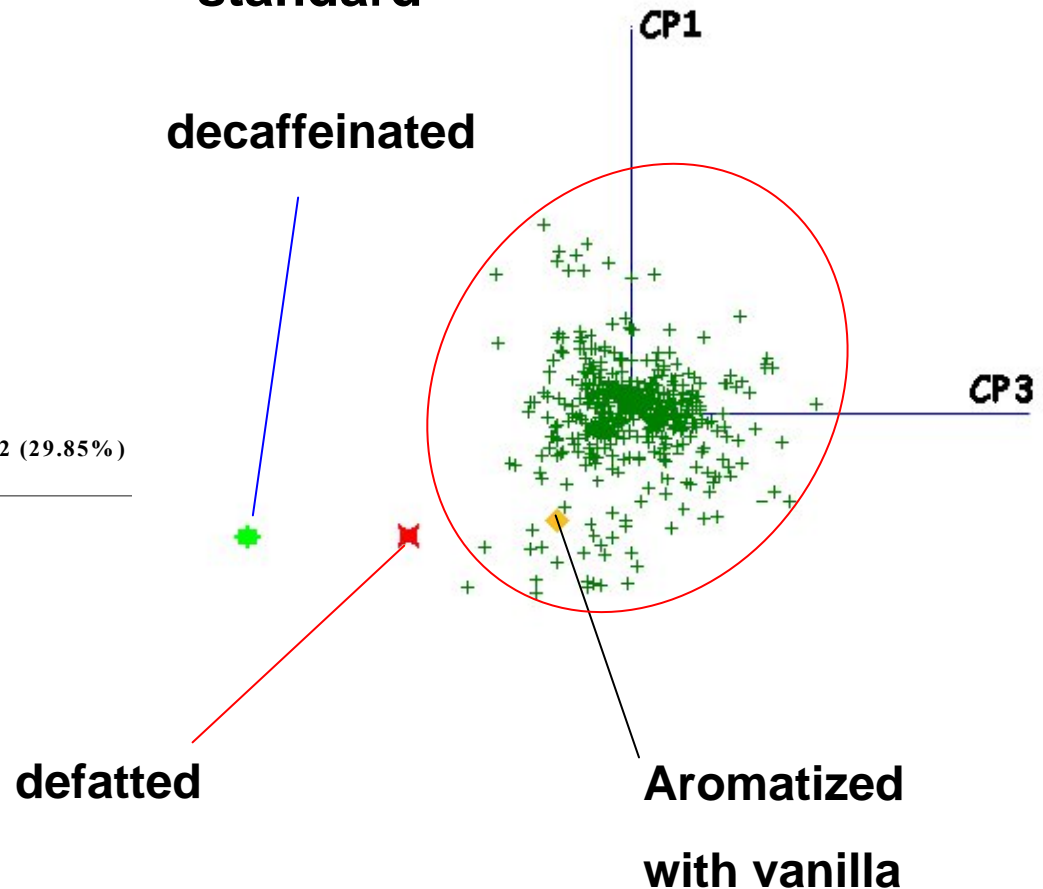
Spectral fingerprint

Characterization of coffee mixtures (roasted and grounded)

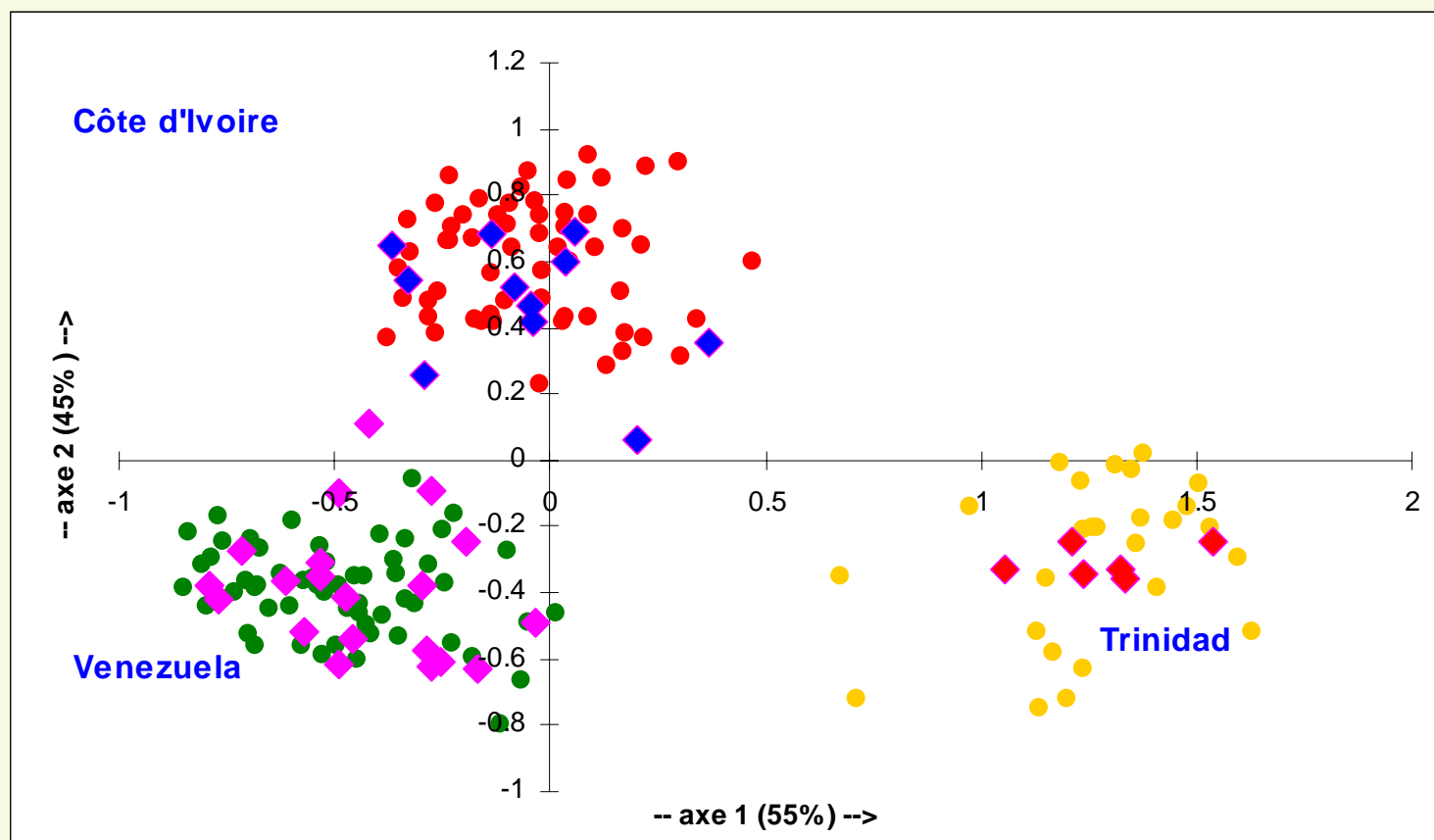
Distribution of coffee arabica and robusta on first principal plan



Comparison of specific coffees to standard



Linear discriminant analysis of three origins of cocoa beans



Classification rate 100%

Many Thanks for your attention !



www.cirad.fr



www.cirad.fr/ur/qualite_aliments



www.alcuefood.org

Mathieu WEIL

mathieu.weil@cirad.fr